

## REMARKS

### I. Claims

Applicants wish to thank the Examiner for the careful consideration given to this application and her continued patience in its prosecution. Claims 1, 2, 4-15, 17, 18, 20-23, and 25-35 are pending in this application. Claims 1, 4, 11, 13-15, and 31 have been amended. Claims 16 and 19 have been cancelled and claims 33-35 have been added. Support for all claim amendments and new claims can be found in the specification as originally filed. Accordingly, no new matter has been added. Note it appears that the Examiner has inadvertently included a withdrawn claim, claim 20 in the rejections below.

### II. 35 U.S.C. § 112, 1<sup>st</sup> paragraph

Claim 15 stands rejected under 35 U.S.C. § 112, 1<sup>st</sup> paragraph, for failing to comply with the written description requirement. Claim 15 has been amended to recite “greater than 1500° C.” Support for this amendment can be found in paragraph [0062] of the specification as originally filed. Accordingly, the Examiner’s rejection is rendered moot.

Claim 15 stands additionally rejected under 35 U.S.C. § 112, 1<sup>st</sup> paragraph, because the Examiner alleges that the specification “while enabling for 1500-4000° C, does not reasonably provide enablement for unlimited temperature of greater than 600° C, e.g., 1,000,000° C or more.” Applicants respectfully traverse this rejection at least because paragraph [0062] of the specification as originally filed provides various embodiments wherein processing is conducted at temperatures of “greater than 1500° C, preferably 2500° C, more preferably greater than 3000° C, and most preferably greater than 4000° C...” (emphasis added). Applicants remind the Examiner that claims should be given their broadest reasonable interpretation (MPEP 2111). The specification at paragraph [0062] clearly provides enablement for temperatures “greater than 4000° C.” Therefore, the Examiner has arbitrarily concluded that the specification is only enabling for temperatures between “1500-4000° C.” Moreover, the upper most limit for heating is obviously bound by what can realistically be achieved. Therefore, the Examiner’s assertion that the Applicants’ claims encompass a temperature of 1,000,000° C is an unreasonable interpretation of the claims. For at least these reasons, this rejection should be withdrawn.

Claims 1, 4, 6, 11-20, 27, 31 and 32 stand rejected under 35 U.S.C. § 112, 1<sup>st</sup> paragraph because “the high temperature processing conducted at 1550.degree.C., preferably 2500.degree.C.....is critical or essential to the practice of the invention.” Applicants respectfully submit that the amendments to independent claim 1 as well as claim 15 as discussed above obviates this rejection. Accordingly, withdrawal of the Examiner’s rejection is respectfully requested.

Claims 1, 4, 6, 11-20, 27, 31 and 32 stand rejected under 35 U.S.C. § 112, 1<sup>st</sup> paragraph because the Examiner alleges that “adding carrier particles to the metal containing precursor is critical or essential... to the practice of the invention.” Independent claim 1 has been amended to clarify that the previously recited metal-containing precursor is a “slurry precursor” of metal-containing precursor mixed with carrier particles. Support for this amendment can be found in paragraph [0052] of the specification as originally filed. Claims 4, 6, 11-15, 17,18, 27, 31 and 32 either directly or indirectly depend from amended independent claim 1 and incorporate all of the elements of amended independent claim 1. Accordingly, the Examiner’s rejection is rendered moot.

Claims 1, 4, 6, 11-20, 27, 31 and 32 stand rejected under 35 U.S.C. § 112, 1<sup>st</sup> paragraph. The Examiner has made a separate enablement rejection under paragraphs numbered 6 and 7 (Office Action, pgs. 3-4) regarding the lack of enabling disclosure in the specification as originally filed for a method in which “without the step of adding the carrier particles” (emphasis original) which appear to be substantially duplicative of the rejection above. Applicants respectfully submit that the amendment to independent claim 1 as discussed above obviates these rejections. Withdrawal of the Examiner’s rejection is respectfully requested.

### **III. 35 U.S.C. § 103**

Claims 1, 4, 6, 11-20, 27, 31 and 32 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,489,449 to Umeya, et al. (“Umeya”) in view of U.S. Patent No. 5,984,997 to Bickmore, et al. (“Bickmore”), and claims 1, 4, 6, 11-20, 27 and 31-32 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bickmore in view of Umeya.

Applicants respectfully assert that neither the combination of Umeya and Bickmore nor the combination of Bickmore and Umeya teach or fairly suggest the step of “preparing a mixture of one or more metal-containing precursors and carrier particles to create a

slurry precursor” and then “feeding the slurry precursor to a reaction zone of a high temperature reactor thereby creating a vapor of the slurry precursor” as recited in amended independent claim 1. Thus, this combination of references fails to disclose or suggest each and every element of amended independent claim 1 and fails to render Applicants’ claimed invention obvious.

Specifically, the Examiner concedes that Umeya teaches a method including the step of “contacting said ultrafines of the coating material with particles of the core material in a fluidized state to strongly deposit the ultrafines onto the surface of said core material” (Office Action, pg. 6). In fact, column 2, lines 23-25 of Umeya, as identified by the Examiner, teaches that particles of the core material in a monodispersed state are introduced into a stream carrying the ultrafines of the coating material. As such, a mixture of one or more metal-containing precursors (i.e., ultrafines) and carrier particles (i.e., core material) is never prepared. Hence, Umeya fails to teach or suggest the step of preparing as recited in amended independent claim 1, and moreover, Umeya necessarily fails to teach or suggest the step of feeding a mixture of one or more metal-containing precursors and carrier particles (i.e., Applicants’ claimed “slurry mixture”) into a reactor.

Bickmore fails to cure the deficiencies of Umeya because Bickmore describes a method for producing homogenous nanoparticle powders from mixtures of elements and not carrier particles coated with one or more metal-containing precursors as presently claimed. As such, Bickmore can be relied upon for providing a method for producing carrier particles and nothing more.

For at least these reasons, Umeya in view of Bickmore and conversely Bickmore in view of Umeya fail to teach or suggest each and every step of amended independent claim 1, and fail to render Applicants’ claimed method obvious. Claims 4, 6, 11-15, 17, 18, 27, 31 and 32 either directly or indirectly depend from and are allowable for at least the same reasons as amended independent claim 1. Claims 16 and 19 have been cancelled thereby rendering the Examiner’s rejection of these claims moot. Accordingly, reconsideration and withdrawal of the Examiner’s rejection is respectfully requested.

Claims 1, 4, 6, 11-20, 27 and 32 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,356,120 to Konig, et al. (“Konig”) in view of U.S. Patent No. 3,565,676 in view of Holzl et al. (“Holzl”), further in view of Umeya. The Examiner

appears to assert that Konig fails to teaches every element of independent claim 1 except the step of processing the stream at high temperatures, since on page 12 of the Office Action, the Examiner has asserted that Konig teaches every element of independent claim 1 except "that the combustion processing was conducted at temperatures "[sic] greater than 2500° C (claim 1) or 3000° C (claim 15)." The Examiner asserts that Holzl teaches that "the temperature of thermal processing of the metal precursor in a reaction zone would depend on a particular metal precursor" (Office Action, pg. 13) based on Holzl's description of preparing a porous tungsten coating from tungsten tetrafluoride (WF<sub>4</sub>). Applicants traverse this rejection for the reasons set forth below.

First and foremost, amended independent claim 1 does not recite either "combustion processing" or processing at "greater than 2500° C" as asserted by the Examiner. Thus, the Examiner is reading limitations into independent claim 1 that are not there. The Examiner is reminded that it is impermissible to import subject matter from the specification into the claim (see MPEP 2111). Additionally, while the Examiner purportedly rejected independent claim 1 "further in view of Umeya et al." (Office Action, pg. 12 at #16) the Examiner has failed to provide a basis for the assertion of Umeya in the rejection. For at least these reasons, the Examiner's rejection of independent claim 1 over Konig in view of Holzl further in view of Umeya has been made improperly and should be withdrawn.

Additionally, even assuming *arguendo* a proper rejection of independent claim 1 can be made based on the cited references, Konig, Holzl and Umeya each fail to teach or fairly suggest "preparing a mixture of one or more metal-containing precursors and carrier particles to create a slurry precursor" and then "feeding the slurry precursor to a reaction zone of a high temperature reactor thereby creating a vapor of the slurry precursor" as recited in amended independent claim 1. Furthermore one skilled in the art would not expect to produce carrier particles coated with a metal-containing precursor by combining the teachings of Konig, Holzl and Umeya.

For at least these reasons, the combination of Konig, Holzl and Umeya fails to teach or fairly suggest the method of amended independent claim 1. Claims 4, 6, 11-15, 17, 18, 27 and 32 either directly or indirectly depend from and add further limitations to amended independent claim 1 and are allowable for at least the same reasons as amended independent claim 1. Claims 16 and 19 have been cancelled thereby rendering the Examiner's rejection of

these claims moot. Accordingly, reconsideration and withdrawal of the Examiner's rejection is respectfully requested.

Claim 31 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Konig in view of Holzl and further in view Umeya and further in view of Bickmore.

Claim 31 depends directly on and adds further limitations to amended independent claim 1 and is allowable over Konig in view of Holzl and Umeya for at least the same reasons set-forth above with respect to amended independent claim 1. Bickmore describes a method for producing homogenous nanoparticle powders from mixtures of elements and not carrier particles coated with a metal-containing precursor as presently claimed. Hence, Bickmore fails to cure the deficiencies of Konig, Holzl and Umeya, and this combination of references fails to render amended independent claim 1 and by association claim 31 obvious. Accordingly, reconsideration and withdrawal of the Examiner's rejection is respectfully requested.

#### **IV. New claims**

Support for new claims 33-35 can be found in the specification as originally filed. In particular, claims 33 and 35 were previously presented as elements of independent claim 1, and support for claim 34 can be found in paragraph [0036]. Therefore, no new matter has been added. Claims 33-35 directly depend from and add further limitations to amended independent claim 1 and are allowable for at least the same reasons as amended independent claim 1. Accordingly, allowance of claims 33-35 is respectfully requested.

#### **V. Rejoinder**

Applicants respectfully assert that the pending claims are in condition for final allowance. As such, Applicants respectfully request that the dependent claims which were previously withdrawn be rejoined and allowed.

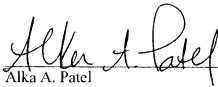
**CONCLUSION**

In view of the aforementioned claim amendments and remarks, Applicants respectfully request reconsideration and withdrawal of the rejections. Applicants maintain that all reasons for rejection have been traversed and made moot by the aforementioned amendments and arguments, and request allowance of all pending claims in the present application.

No fee is believed to be due for this submission. However, the Commissioner is hereby authorized to charge any fees which may be required for this submission or credit any overpayment to Deposit Account No. 50-0436.

Should the Examiner have any questions or comments, or need any additional information, she is invited to contact the undersigned at her convenience.

Respectfully submitted,  
PEPPER HAMILTON LLP

  
Alka A. Patel  
Registration No. 49,092

One Mellon Center  
500 Grant Street, 50th Floor  
Pittsburgh, PA 15219-2505  
Telephone: (412) 454-5000  
Facsimile: (412) 281-0717

Date: February 17, 2009